CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No.: CTCE/BBMP/W.No.06/KRIDL/CEMENT/2012-13 Date: 08.04.2013

TEST REPORT

CLIENT	:	**Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
SAMPLE ID	:	Cement
SAMPLES SUPPLIED BY	:	AGENCY

The results of the tests conducted on the cement sample are as follows:

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-1989
1	a) Initial Setting Time	IS-4031 (Part -5)	135 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5)	480 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part 3) by the Le-Chatelier method	1 mm	Not more than 10 mm
3	Standard Consistency	IS 4031 (Part -4)	28.00 %	-

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No: CTCE/BBMP/W.No.06/KRIDL/SAND/2012-13 : 08.04.2013

TEST REPORT ON FINE AGGREGATES (SAND)
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, - BBMP, Bangalore.

Reference : EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013

Date of Testing : 08.04.2013

Material : Sand Total Wt. of Aggregates in gms 2000

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits For Zone-II
10	0	0	0	100	100
4.75	102	5.10	5.10	94.9	90-100
2.36	226	11.30	16.40	83.6	75-100
1.18	512	25.60	42.00	58.0	55-90
600 Micron	412	20.60	62.60	37.4	35-59
300 Micron	485	24.25	86.85	13.2	8-30
150 Micron	215	10.75	97.60	2.4	0-10

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No.: CTCE/BBMP/W.No.06/KRIDL/AGG/2012-13 : 08.04.2013

TEST REPORT ON COARSE AGGREGATES
IS 383-1970 (RA- 2002)

Client : **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.

Reference : EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013

Date of Testing : 08.04.2013

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **25800**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	1015	3.93	3.93	96.07	95-100
20	15326	59.40	63.34	36.66	30-70
10	6525	25.29	88.63	11.37	10-35
4.75	2364	9.16	97.79	2.21	0-5

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No.: CTCE/BBMP/W.No.06/KRIDL/CUBE/2012-13 23.06.2013

TEST REPORT ON CONCRETE CUBES

Client	: **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of the work	: Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
Sample ID	: Culvert Deck Slab Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516 1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	25.04.2013	23.06.2013	8.264	513.4	22.82
2	25.04.2013	23.06.2013	8.321	527.5	23.44
3	25.04.2013	23.06.2013	8.475	530.6	23.58

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No: CTCE/BBMP/W.No.06/KRIDL/WMM/Gradation/2012-13 15.05.2013

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.

Reference : EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013

Date of Testing : 15.05.2013

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **25900**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	998	998	3.9	96.1	95-100
22.4	6384	7382	28.5	71.5	60-80
11.2	5582	12964	50.1	49.9	40-60
4.75	4426	17390	67.1	32.9	25-40
2.36	3635	21025	81.2	18.8	15-30
0.600	2250	23275	89.9	10.1	8-22
0.075	2340	25615	98.9	1.1	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No.: CTCE/BBMP/W.No.06/KRIDL/WMM/AIV/2012-13 15.05.2013

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to Roads and Drains at Bhatathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
Reference	EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	15.05.2013

Sl No.	Details	Trial No. 1	2	3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	389	382.5	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	85.5	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	303.5	294.5	
4	Aggregate Impact value = percent fines	22.34	21.98	23.01	
	$100^{-}(W_2/W_1)\%$				22.44

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 15 days from the date of testing.

Assistant Executive Engineer,
Byatarayanapura Sub Division
B.B.M.P. Bangalore.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore-560079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

An ISO 9001:2008 Certified Company
(Building, Geo-Tech & High way Material Testing Research Laboratory)
Engineering Project Consultants

JAS-ANZ
BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.06/KRIDL/WMM/Shape T/2012-13 15.05.2013

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client : **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
Agency : **Technical Manager,** KRIDL, Bangalore.
Name of Work : Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
Reference : EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
Technical Reference : IS 2386(Part 1) 1963 (RA 2007)
Type of Mix : Wet Mix Macadam
Date of Testing : 15.05.2013

Passing through IS Sieve, mm	Retained On IS Sieve, mm	Weight of Sieved Fraction (W) gms		Proportion of Size range in the sample, X = 100xW/ΣW		Weight of 200 pieces of aggregates of the range, (P) in gms		Thickness gauge size, mm	Weight of flaky particles (F)in gms		Percentage by Weight of flaky aggregates in gms Y= 100xF/P	Weighed Percentage of flaky aggregates in gms XY=X x Y	Weight of fraction consisting of at least 200 Pieces in gms		Length gauge size in mm	Weight of aggregates in each fraction retained on Length gauge in gms	
63.00	50.00	W1		X1		P1		33.90	F1				P1		-	E1	
50.00	40.00	W2	2842	X2	20.08	P2	2038	27.00	F2	487	16.44	330.19	P2	2938.0	81.00	L2	283
40.00	31.50	W3	2586	X3	18.28	P3	2672	21.50	F3	368	13.77	251.70	P3	2672.0	64.40	E3	238
31.50	25.00	W4	1847	X4	13.05	P4	1793	16.95	F4	282	15.74	205.41	P4	-	-	E4	-
25.00	20.00	W5	2369	X5	16.74	P5	2163	13.50	F5	205	9.48	158.67	P5	2163.0	40.50	E5	220
20.00	16.00	W6	1684	X6	11.90	P6	1685	10.80	F6	167	9.91	117.95	P6	1685.0	32.40	E6	205
16.00	12.50	W7	1528	X7	10.80	P7	1347	8.55	F7	102	7.57	81.77	P7	1347.0	25.60	E7	169
12.50	10.00	W8	920	X8	6.50	P8	728	6.75	F8	85	11.68	75.91	P8	728.0	20.20	E8	113
10.00	6.30	W9	374	X9	2.64	P9	260	4.89	F9	71	27.31	72.18	P9	260.0	14.70	E9	95
		Σ W	**14150.0**								**ΣXY**	**1293.79**	**ΣP**	**11793.0**			**ΣE 1323.0**

Result : Flakiness Index = **12.94%**

Elongation Index = **11.22%**

Result : Combined Flakiness & Elongation Index **24.16%**

Note:

→ The results indicated above are based on the tests carried out on the samples received in the laboratory.

Assistant Executive Engineer
Byatarayanapura Sub Division
BBMP, Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

Job No : CTCE/BBMP/W.No.06/KRIDL/WMM/AL/2012-13

15.05.2013

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.

Reference : EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013

Date of Testing : 15.05.2013

Material : WMM

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	21.75	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.06/KRIDL/SDBC/Bit/2012-13 03.06.2013

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
SAMPLE I/D	Cross Roads at Telecom Layout Ward No.06
DATE OF TESTING	03.06.2013

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476	475.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24	24.50
7. Bitumen content in %	4.80	4.90
8. Average	4.85	

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 15 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ.ಬ.ಮ.ಪ. ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar,
Bangalore - 560 079

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.06/KRIDL/SDBC/Bit/2012-13 03.06.2013

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164 & AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Byatarayanapura Subdivision, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Roads and Drains at Bharathnagara in Ward No.06, Byatarayanapura, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/KRIDL/W.O/474/2012-13 Dated: 20.03.2013
SAMPLE I/D	Cross Roads at Telecom Layout Ward No.06
DATE OF TESTING	03.06.2013

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-4 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	31.25	6.57	6.57	93.43	90-100
4.75	258.6	54.33	60.89	39.11	35-51
2.36	55.62	11.68	72.58	27.42	24-39
1.18	46.31	9.73	82.31	17.69	15-30
0.3	28.97	6.09	88.39	11.61	9-19
0.075	32.66	6.86	95.25	4.75	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-4 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.54	5.58	5.58	94.42	90-100
4.75	256.3	53.90	59.48	40.52	35-51
2.36	58.64	12.33	71.81	28.19	24-39
1.18	32.61	6.86	78.67	21.33	15-30
0.3	24.15	5.08	83.75	16.25	9-19
0.075	54.28	11.42	95.17	4.83	3-8

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 15 days from the date of testing

Assistant Executive Engineer
Byatarayanapura Sub Division
B.B.M.P. Bangalore

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthi Ganapathi Nagara
Basaveshwaranagar,
Bangalore - 560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.
Tele fax : 23223227, Cell : 93428 39190, Website : www.civiltechconsultants.com
e-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com